The Correlation Between Tumor Necrosis Factors-Alpha (TNF-α) and Resistin in Obese Iraqi Women

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Abstract

Obesity is a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health. The current study aimed to study the correlation between resistin and Tumor Necrosis Factors-alpha (TNF-α) in Obese Iraqi women. The group of patients contain twenty five women with Obesity and apparently thirty healthy women were present as a control group. Estimation of sera resistin and Tumor Necrosis Factors-alpha (TNF-α) were done by using "enzyme-linked immunosorbent assay" (ELISA). Sera levels of resistin was increase significantly in women with obesity group compared with control group ($p<0.01$). Also the results show positive correlation between Tumor Necrosis Factors-alpha (TNF-α and resistin. In women with obesity, depending on present findings, resistin is implicated in pathogenesis of obesity related with Tumor Necrosis Factors-alpha (TNF-α) .

Keywords: *Iraqi Women; Tumor Necrosis; Factors-Alpha; Health*

Introduction

The obese often caused by multiple causes, such as hereditary and behavioral factors, therefore treatment, it needs more than one dietary change .The behavioral changes such as walking, exercise and seeking expert advice from specialists, can at time use nutritional supplements to help an obese patient overcome them(1).

Obesity and overweight contribute greatly to many health problems. Both conditions increase the body's risk of developing many diseases such as: type 2 diabetes, prostate and colon cancer(2) as well as gout, hypertension, heart disease (CVA, heart failure, myocardial infarction), gallbladder disease and Pickwickian syndrome (3).

The body mass index is a link between height and body weight. The length is measured in square meters (m^2) and the weight is measured in kilograms (kg). This is because the mass index shows the body weight in relation to height, as it is strongly related to the total fat content in the body(4).

Although the mechanism is not yet clear, it is generally recognized that obesity is an important risk factor for insulin resistance. It has become known that the adipose tissue is one of the endocrine glands as it secretes a group of hormones such as resistin, which is a cytokine that is mainly expressed by the adipocytes and its work is antagonizes to the action of the hormone insulin (5).

There are many research and reports that dealt with and discussed the relationship of the three together (insulin resistance and obesity with resistin, where new reports mentioned that one of the causes of impairing insulin action in the production of hepatic glucose is resistin, and in particular it inhibits skeletal muscles from absorbing glucose by GIUT-4(6).

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Tumor necrosis factor are lymphokines that present in two forms (a or b) : In the body they have the ability of causing hemorrhagic necrosis of specific tumor cells, but not affecting normal cells. And TNF-αalso has important effects on human body like lipid and glucose metabolism[7].

Some recent studies have reported that (TNF-α) is expressed in adipose tissue . It has been observed that this level of cytokine is elevated in obese people[8].

There is some evidence that TNF- α may stimulate insulin resistance. Consequently, he may be responsible, if only partially, for disorders of the metabolism of fats and glucose. Which is associated with type 2 diabetes mellitus and obesity. There are many studies showing that TNF- α directly interferes with the early steps in the insulin signaling pathway[9].

There are many studies that examined the levels of resistin and Tumor Necrosis Factors-alpha (TNF-α) in obese women. in the present research are studying the correlation between resistance and Tumor Necrosis Factors-alpha (TNF-α) in Iraqi obese women.

Materials and Methods

The current study included (25) women with obesity as the first group, with the mean age ± SD for patients (22.44±3.2). The obese women were interviewed using a structured questionnaire to determine the smoking women and also take other information like their Medical history ,family history and surgical history. All women were collected from Babylon maternity and pediatric teaching hospital in Hilla city.

The second group is the control group and it contains 30 women who appear to be in good health, with the mean age ± SD (23.34 ± 2.95). We were excluded in both groups all the women with chronic diseases such as diabetes and blood pressure, as well as we excluding women smokers.

All females (patients or control) are assessed the status of obesity by body mass index (BMI).

In this study, use SSPS version 18 to complete the statistical analysis. The results were expressed by the Student's F-test and Pearson correlation analysis. P values less than 0.05 is considered significant.

Results and Discussion

Obesity is a special medical condition resulting from the accumulation of fat in the body, which leads to an increase in body weight and thus affects the health of the body. In this case, the doctor diagnoses the condition that the person suffers from obesity. Usually the doctor uses the BMI as an evaluation tool. If it is high, the person suffers from an increase in weight relative to his age and height. This value combines height and weight[10].

The BMI between 29 and 25 indicates that a person suffers from an increase in weight, either if the value of the BMI increases from 30 or more, so that indicates that the person suffers from obesity[11].

Table 1 shows a significantly increase in the concentration of resistin in serum of women with obesity group by comparison with control group ($p>0.01$).

The present study agrees with the study of Degawa-Yamauchi M,[12] who found that increase in Serum Resistin Protein Is Increased in obese women.

Resistin is an adiponectin, so it is believed that it is excreted or released in large quantities from macrophages, and this leads to stimulation of the production of inflammatory cytokines in human adipose tissue[13].

There are many previous studies, including a study by Lockyer, where it was suggested that the hormone resistin plays an important role in overweight and obese cases, as well as it plays as a connection between obesity and resistin [14].

At the same time, there are other studies and research that indicate a relationship between obesity and insulin resistin. Also, high levels of insulin resistin are also observed in obese women who are obese[15].

The present study agrees with the study of Hotamisligil G.S.[16] who found that increase TNF –alpha Is Increased in obese women. Through its obesity-related overexpression in adipose tissue

The present study shows in Table 2, a significant correlation between the resistin and TNF –alpha in two different groups.

Table 1 : Biochemical parameters of Obesity and control groups.

Parameter	obese group n= 25	Control n=30	P values
Resistin ng/ml Mean± SD Range	(16.45±2.106) (14.2-20.5)	(7.26±1.326) (5.33-9.9)	P <0.01
TNF -alpha pg/ml Mean± SD Range	23.95±1.94 (20.2-27)	10.92 ±2.439 (8.4-16.5 (	P <0.05
BMI Mean± SD Range	34.9±1.4 (31.6-39.2)	21.87 ±1.350 (19.5-24)	P <0.05

Table (2): Pearson's correlation between resistin and TNF alpha the levels of in different groups (n= 55)

parameters	Obese group		control	
resistin vs T NF	R	p	r	p
	0.969	0.01	0.44	0.05

Significant = P< 0.05 high significant = P< 0.01

Conclusion

Depending on this study findings, which inspire us that resistin is participate in pathogenesis of obese related with TNF -alpha.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq

Conflict of Interest: Non

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